PERSONAL PREPAREDNESS GUIDE
CHEMICAL AGENT: Mustard Gas

What It Is

Mustard gas is a colorless, oily, odorless liquid that can be vaporized to form a gas. When mixed with other chemicals, it has a brownish tint and develops a pungent, garlicky odor. Mustard gas enters the body through inhalation or skin contact, and it damages any tissue that comes into contact with it. It is more harmful to the skin on hot, humid days or in tropical climates.

Mustard gas was used in chemical warfare in World War I and World War II. It was so powerful that only small amounts had to be added to explosives for it to be effective. Once in the soil, mustard gas remains active for several weeks.

It was also used at one time in the topical treatment of psoriasis.

Symptoms

Mustard gas burns the skin and causes blisters within a few days. The blisters may grow quite large and may be yellowish-brown in color. The parts of the body that are sweaty are the most likely to be harmed. It makes a person's eyes burn, eyelids swell and causes blinking. It attacks the corneas and can cause blindness. If inhaled, it can cause coughing, bronchitis and long-term respiratory disease. It can cause cancer in a person's airways and lungs later in life. Some of the chemicals that are formed when mustard gas is burned or spilled into water can also be irritating to the skin.

Testing

There is no effective medical test to determine exposure to mustard gas. One of the chemicals it makes in the body can be found through a urine test, but that chemical can also be found in people who have not been exposed to mustard gas.

Prevention/Treatment

Treatment has traditionally involved rapid decontamination and symptomatic treatment. Victims should be moved into an area with fresh air as soon as possible. Contaminated clothing should be removed as soon as possible. If a person's eyes are exposed, they must be flushed with lukewarm water for at least 15 minutes. Exposed skin should be washed thoroughly with water. Blisters should be treated as burns. If a person does not have a pulse, CPR will be administered. If a person is not breathing, artificial respiration will be provided. If

breathing is labored, oxygen or other respiratory support is administered. Mustard gas changes into other chemicals in the body and those chemicals mostly leave the body in the urine within a few weeks.

Recovery Potential

If a person is exposed to a very large amount of mustard gas or exposed for a prolonged period of time, he could die.

Environmental Cleanup

The gas changes its form very quickly in water, so it is very unlikely that a person would ever drink it. Any possibility of exposure of the general population by way of water (drinking, cooking, bathing, swimming) is therefore very small. If it is accidentally released, it will stay in the air or on the ground for about a day. Workers wear protective suits and masks to decontaminate affected areas and people. If contained, mustard gas must be disposed of in a controlled environment. If not contained, mustard gas loses its toxicity in a few weeks.

The information was compiled from the following sources:

Agency for Toxic Substances and Disease Registry
http://www.atsdr.cdc.gov/tfacts49.html

Ben-Gurion University

Bristol University
http://www.bris.ac.uk/Depts/Chemistry/MOTM/mustard/mustard.htm

Congressional Research Service